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PART VI

ENVIRONMENTAL PROTECTION AGENCY

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CONTROL OF AIR POLLUTION FROM NEW MOTOR VEHICLES AND NEW MOTOR VEHICLE ENGINES

Revision to Emission Testing Procedure

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CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

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PART 86—CONTROL OF AIR POLLUTION FROM NEW MOTOR VEHICLES AND NEW MOTOR VEHICLE ENGINES: CERTIFICATION AND TEST PROCEDURE

Revision to Emission Testing Procedure

AGENCY: Environmental Protection Agency.

ACTION: Final rulemaking.

SUMMARY: This action amends the procedures (40 CFR Part 86) by which new 1981 and later model year light-duty vehicles (LDV's) and new light-duty trucks (LDT's) will be tested for purposes of determining compliance with applicable Federal Regulations established under the authority of the Clean Air Act, as amended. The Environmental Protection Agency (EPA) published a Notice of Intent to Develop Rulemaking on this subject on May 31, 1977. The proposed amendment to the test procedures was published as a Notice of Proposed Rulemaking (NPRM) on October 21, 1977. The NPRM proposed test procedure changes which would permit EPA to test, or require manufacturers to test, LDV's and LDT's with their engines adjusted to any combination of settings within the physically adjustable ranges of their adjustable parameters prior to testing, rather than set precisely to the manufacturer's specifications.

EPA proposed these changes, and is now promulgating them in revised form, because data indicate that significant numbers of vehicles which were certified as being capable of meeting applicable emissions standards (when operated in accordance with manufacturer's instructions and adjusted to manufacturer's specifications) are exceeding the standards in actual use due to maladjustments.

Comments were received during the public comment period on several aspects of this action, and changes have been made in response to the comments. The purpose of this amendment remains as stated in the NPRM, i.e., to require light-duty vehicles and light-duty trucks to meet the standards even when maladjusted, or conversely to motiviate manufacturers to effectively reduce the feasibility and likelihood of vehicles being adjusted to other than manfacturer's specifications.

EFFECTIVE DATE: March 13, 1979. These changes in the test procedures will apply in two stages, to 1981 and then 1982 and later model year vehicles.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

Background and Purpose

Before new motor vehicles may be introduced into commerce, the Clean Air Act requires that they be covered by a certificate of conformity with emissions regulations.

Currently, to determine whether new vehicles will be issued a certificate of conformity, vehicles are tested with their various adjustable parameters (e.g., ignition timing, idle air/fuel mixture) set according to the manufacturer's specifications. In the Selective Enforcement Audit (SEA) program, EPA tests production vehicles in their assembly-line state of adjustment, including any subsequent adjustments normally made on all vehicles prior to delivery. The outcome of these procedures is that new vehicles usually only need to demonstrate emission compliance with their parameters adjusted to the manfacturer's recommended settings. However, some of these parameters are easily adjusted on in-use vehicles to other settings. Such maladjustment can cause a vehicle that complied in certification and SEA to substantially exceed standards in use.

EPA has in fact observed such in-use maladjustment. Since 1971 EPA has measured the emissions of in-use vehicles, in part to evaluate the effectiveness of its emission control program. Measurements made on 1975 and 1976 model year vehicles revealed that over half of them failed to meet one or more of the emission standards to which these models were certified. EPA initiated the Restorative Maintenance Study to determine why this was so. The results of this study have indicated two primary causes: disablement of emission control components and maladjustment of engine parameters. Of 300 in-use, low-mileage vehicles tested in three cities, 38 percent were considered to have maladjusted idle mixture, 25 percent had maladjusted idle speed, 10 percent had maladjusted choke valve action, and 19 percent had maladjusted initial spark timing.

Most of those vehicles that initially failed the emission test passed it after measures were taken to correct disablements and to restore parameters to a proper state of adjustment. Further, these measures caused a substantial reduction in the average emissions of the test group. Most of this reduction was attributable to adjustment of idle speed and idle mixture to their proper settings. Once disablements and other maladjustments were corrected, correction of the idle speed and idle mixture reduced the average carbon monoxide emissions of the test group by 68% of the applicable standard and the average hydrocarbon emissions by 23% of the standard.

There are a number of possible reasons why parameters are not properly adjusted on in-use vehicles. Some vehicles may have been adjusted incorrectly when delivered to their owners. Maladjustments also occur after vehicles are delivered to their owners, for several reasons. Many mechanics probably depart from a manufacturer's instructions because they lack up-to-date knowledge or lack required test equipment. Mechanics and owners may also make deliberate maladjustments in an attempt to cure driver complaints about acceleration, quality of idle, and cold starting. Some maladjustments may occur spontaneously during use and not be corrected because of inadequate maintenance practices.

These causes of in-use maladjustments can be partially overcome by better vehicle designs and manufacturing practices. These improvements fall into five categories:

1. Parameter settings which are not needed for proper vehicle operation in use can be eliminated from the adjustable range of the parameter. Wide ranges of adjustment are a convenience during manufacturing, but they increase the likelihood and severity of inadvertent or accidental maladjustment. In some cases parameters can be adjusted at the factory and then fixed in position, without creating any problems during later use of the vehicle. In other cases the stops that limit the range of adjustment can be made more effective than they have been in the past (e.g., plastic limiter caps that have been easily removed).

2. While narrowing the range of parameter adjustment settings will not by itself ensure emission compliance over the remaining range, more significant design changes are possible which will ensure compliance. These design changes will change the vehicle operating characteristics so that emission compliance will be assured over the operating range of the adjustment, or the design changes may entirely eliminate the need for the adjustable parameter.

3. The tolerances with which parameters are adjusted during production can be kept narrow enough so as not to cause vehicles to exceed the emission standards. This will be particularly important when manufacturers begin sealing or making adjustment mechanisms inaccessible, as EPA anticipates they may for some parameters. When corrective adjustment in the field becomes more difficult, parameters should be adjusted more carefully in production.

4. Manufacturers can reduce the incentives for maladjustment by owners. Good acceleration, idle quality, cold starting, etc., can be provided at the recommended settings. Owners would then have less reason to resort to nonrecommended settings in an attempt to get better driveability. The availability of such technology has been demonstrated by manufacturer-to-manufacturer differences in the frequency of maladjustments on 1975 and 1976 vehicles.

5. Manufacturers can design the next generation of electronic engine and emission control systems in ways that reduce in-use maladjustment. These control systems, if carelessly designed, could be even more maladjustment-prone than past systems. But with relatively little preventative effort now, the control systems of the mid 1980's can be more maladjustment-proof.

EPA is promulgating this revision to the emission test procedure so that it can require manufacturers of LDV's and LDT's to make these types of improvements. Vehicles in these categories will be required to be in compliance with the emission standards when certain adjustable parameters, designated by EPA, have been adjusted within ranges recommended by the manufacturer. This change will give each manufacturer a strong incentive to limit adjustability or otherwise make maladjustment less likely on in-use vehicles, to produce vehicles which are properly adjusted, and/or to reduce the sensitivity of emission control systems to such maladjustments. A manufacturer that does not do so will risk denial, suspension or revocation of the certificate of conformity.

Some comments received in the course of this rulemaking (from private individuals and members of the service and aftermarket parts industries [1]) ascribed broad and far-reaching effects to these regulations. Some felt that the regulations provided a 50,000 mile warranty on emission-related components or would require that service be performed only at dealerships. Others thought that these regulations would require maintenance-free cars. These regulations do not have the scope perceived in those comments.

These regulations provide only that vehicles will meet the prescribed emission standards with certain selected parameters adjusted to any setting within the physically adjustable range. These regulations will not substantially alter the traditional need for vehicle maintenance, will not require that maintenance be performed at dealerships, and will not provide a 50,000 mile warranty on emission-related components.

Motor vehicle manufacturers are becoming quite adept at automatic control of various vehicle functions. Parameters which have traditionally required periodic adjustment will, in the future, be automatically controlled or eliminated. The regulatory purpose of this rulemaking (to assure that motor vehicles meet the emission standards at any settings within the parameters' adjustable ranges) may be accomplished in a variety of ways; the manufacturers are, however, expected to accelerate the application of advanced parameter control technology. EPA expects that the service industry will keep pace with this trend by providing and using more sophisticated and automated diagnostic equipment.

Summary of Changes From the NPRM

The NPRM: EPA proposed in the NPRM that beginning with the 1980 model year, manufacturers be required to describe as part of their application for EPA certification all adjustable parameters that may affect emissions. This description of their physical limits and adjustable ranges as intended by the manufacturer, and the nominal or recommended setting for each at the manufacturer's option, additional information could be provided. EPA could adjust these parameters to settings selected from within the parameters' physically adjustable ranges as determined by EPA, prior to testing an emission data vehicle.

A physically adjustable range as determined by EPA might not be the same as intended by the manufacturer. The two could be different if EPA considered it likely that the physical limit, or other methods used to inhibit adjustability, would be overcome on in-use vehicles.

A vehicle which failed the emission test when adjusted to EPA's selected setting would be denied a certificate of conformity. For vehicles which were successfully certified, EPA could again adjust parameters prior to testing assembly line vehicles as part of the Selective Enforcement Audit program. EPA could revise its determination of the physically adjustable ranges and its selection of test settings before each Selective Enforcement Audit.

In addition, EPA included in the preamble to the NPRM several examples and guidelines intended to illustrate how EPA would make its determinations and selections once the new procedure was in effect.

The Final rule: The regulations being promulgated today include a number of notable changes from the proposal's provisions as outlined above, both in response to comments and in the interest of clarifying the requirements of this action and the Clean Air Act:

1. The information that the manufacturer must provide in the application for certification is clarified to separately include the tolerances to which physical limits or stops will be placed during production, and those to which sealed and inaccessible parameters will be adjusted.

2. EPA must make several early determinations regarding the adjustment of parameters on vehicles tested during certification and SEA:

(a) EPA must determine which parameters will be subject to adjustment;

(b) EPA must determine the adequacy of any limits, stops, seals, or other means used to inhibit the adjustment of each of these parameters; and

(c) EPA must determine two physically adjustable ranges for each of these parameters. Production tolerances on stops affect the adjustable range of physically adjustable parameters and production tolerances on settings affect the adjustable range of sealed parameters; therefore, production tolerances must be included in the physically adjustable range for certification. For SEA, which tests production vehicles, production tolerances come into play automatically and need not be considered further when setting the parameters.

EPA must make these determinations and notify the manufacturer no later than when it selects the emission data vehicles for the manufacturer's test fleet. EPA must make them earlier if the manufacturer submits adequate descriptions of its vehicles' parameters in advance of its preliminary application. The NPRM was not as explicit as to what determinations would be made at what stages in the certification process. The NPRM also did

[1] In all, comments on the NPRM were received from five domestic manufacturers of light-duty vehicles and light-duty trucks, 11 foreign manufacturers, 24 private individuals, 13 companies or organizations involved in automotive parts manufacturing or distributing or automotive repair, the Automobile Owners Action Council, the Department of the Army, the Department of Transportation, the General Services Administration, the Departments of Environmental Protection of the States of Connecticut and New Jersey, and the California Air Resources Board. All comments received were reviewed and considered in the final preparation of this regulation.

not state that production tolerances would be treated as outlined above.

3. The amendments provide an opportunity for the manufacturer to request a hearing on the above determinations within 30 days of being notified, at which time it can appeal them. The NPRM did not explicitly provide such an appeal procedure. This opportunity to request a hearing is in addition to less formal appeal procedures now available to manufacturers during the certification process.

4. These determinations regarding the adjustment of parameters will apply to compliance testing of both emission data vehicles during certification and production vehicles during SEA. EPA will select test settings only for the parameters designated as being subject to adjustment, and only from their appropriate physically adjustable ranges. Of course, for certification testing, the production tolerances (as projected by the manufacturer) will be included in the physically adjustable ranges and for SEA the production tolerances take care of themselves. Subject to these two restrictions, test settings selected for SEA testing may be different from those selected for certification testing. EPA may select test settings at any time prior to a certification or SEA test. EPA may select settings independently before each test, but each time it will consider the likelihood of the selected test settings occurring on in-use vehicles. One of the factors that may influence this consideration is the effect of the settings on vehicle performance characteristics. EPA does not intend to choose settings that are unlikely to occur in use because of their adverse effect on performance.

EPA will not select test settings for parameters that EPA has not previously determined to be subject to adjustment. These parameters will be treated as they are under the present test procedures, i.e., adjusted according to manufacturer's specifications or left in their production states.

The NPRM differed in that it would have allowed EPA to revise all parameter adjustment determinations prior to each test. It also permitted, but did not require, EPA to consider various factors when making determinations, although the preamble to the NPRM made it clear that EPA intended to consider all relevant factors.

5. A restriction has been placed on EPA's authority to adjust parameters which were present on a vehicle in the previous model year. EPA may adjust a parameter that is repeated from the previous model year only if EPA has given the manufacturer adequate indication in advance that it might do so. The NPRM did not require such notice. This final rulemaking constitutes the notice needed for adjustment of selected parameters (idle fuel-air mixture, idle speed, initial spark timing, or choke valve action) according to the schedule described immediately below.

6. The implementation schedule has been changed. The 1981 model year will be the first affected by the revised test procedures. For the largest category of LDV's and LDT's, those which use gasoline and are equipped with carburetors, two parameters will be regulated beginning in 1981: idle fuel-air mixture and choke. Two more will be regulated in 1982: idle speed and initial spark timing. Gasoline-fueled LDV's and LDT's with fuel injection systems will follow the same schedule, except choke parameters will not be affected. At present there is no schedule for regulating specific parameters on Diesel-powered LDV's and. LDT's. EPA may on some future date establish a schedule for regulating parameters on Diesel-powered vehicles and other parameters on gasoline-fueled vehicles, subject to conditions and restrictions explained in detail in the discussion of major issues, below. Rulemaking will not be required to establish such a schedule.

7. EPA has revised some of the examples and guidelines that were given in the preamble to the NPRM and incorporated some into the text of the amendment itself, which, of course, binds EPA to agree that the examples do, in fact, represent adequate mechanisms for limiting adjustment.

8. A specific requirement that the manufacturer ensure safe vehicle driveability within its intended physically adjustable range is added. This requirement is not new, but rather construes the existing requirement of § 202(a)(4)(A) of the Clean Air Act that emission control devices, systems, or elements of design shall not cause or contribute to an unreasonable risk to public health, welfare, or safety in their operation.

The final rule also eliminates two potential ambiguities present in the NPRM. It makes it clear that all adjustable parameters must be described in the application for certification, including those that the manufacturer has designed for restricted adjustability, and that the regulations apply to both EPA and manufacturer testing of emission data vehicles.

The notable changes and the reasons EPA has made them are described in detail in the discussion of major issues, which follows.

Discussion of Major Issues

Should the regulation be general in scope?

The NPRM proposed that EPA have general authority to adjust any adjustable engine or vehicle parameters prior to conducting compliance tests. Many manufacturers commented that only a few parameters have been observed to be maladjusted on in-use vehicles and that it was unnecessary and/or unreasonable to extend EPA's adjustment authority to include other parameters. Most of these manufacturers requested that the change in the test procedure apply only to the idle air/fuel mixture adjustment.

EPA recognizes that at the present time it does not have a basis for concluding that all adjustable parameters are maladjusted in use. No doubt many parameters have not been found to be maladjusted because they are in fact not maladjusted in actual use. On the other hand, the Restorative Maintenance Study was limited in scope and structured to find only those few parameters which are most frequently maladjusted, with significant emission effects. In addition, only low mileage vehicles were studied. Undetected maladjustments may be detected where other parameters are studied or when older vehicles are examined.

Parameters which are not being maladjusted now may begin to be maladjusted in the future if EPA regulates the adjustability of other parameters. For example, manufacturers might make the fuel float level adjustable if they choose to do without adjustable idle mixture screws. In addition, new types of emission control systems may have adjustable parameters that do not fit into current categories. Such parameters cannot be listed in this regulation and would have been excluded if the scope of the regulation were limited to specific parameters found on present systems.

Limiting the scope of the regulation as suggested by the manufacturers would prevent EPA from requiring manufacturers to correct known or foreseen maladjustment problems involving any of these other parameters. The delay between when a parameter was identified as being reasonably likely to be maladjusted in use and when EPA could complete the rulemaking needed to add it to the list of regulated parameters could allow one or more years of production of maladjustment-prone vehicles. Therefore, to allow EPA the flexibility it needs to deal with future maladjustment problems, the general authority proposed in the NPRM has been retained in this final rule.

This does not mean that EPA will force manufacturers to redesign all adjustable parameters simply as a precaution. This final rule requires EPA to consider the likelihood that nonrecommended settings will occur on in-use vehicles when determining which parameters will be subject to adjustment. It also states that EPA may consider such factors as the information provided by the manufacturer in the

preliminary application, surveillance information from similar in-use vehicles, and factors that might encourage or discourage maladjustment of a vehicle once in use. As a matter of policy, EPA will determine a parameter to be subject to adjustment only if it believes that the occurrence of non-recommended settings may cause a significant increase in emissions. EPA will consider the degree, frequency, and emission impact of maladjustments when judging the significance of an actual or potential maladjustment problem and the desirability of correcting it via the broad authority contained in this regulation. For example, based on present information EPA would not determine any transmission, brake, wheelbearing, clutch, or valve lash parameters to be subject to EPA adjustment, even though they may affect emissions.

In any case, the manufacturer has the right to appeal these EPA determinations through either an informal process or through the formal process identified in § 86.081-22(g).

The fact that EPA has not determined that a parameter is subject to EPA adjustment does not in and of itself remove the liability of a manufacturer for recall if a substantial number of in-use vehicles, although properly maintained and used, are in nonconformity due to adjustment of the parameter beyond the manufacturer's recommended setting.

LEAD TIME AND FEASIBILITY CONSIDERATIONS

The object of the revised test procedure is to induce manufacturers to make design changes to their vehicles, both immediately and on a continuing basis to ensure that significant maladjustment problems do not occur in actual use. The feasibility of and required lead time for these changes will naturally be of concern to the manufacturers. They will also be of concern to EPA. EPA intends to consider feasibility and to give manufacturers sufficient notice of parameters which will be subject to adjustment in each model year. EPA has done so for certain parameters in the context of this final rulemaking (see "What Parameters Will Be Initially Affected?" and "Implementation Schedule" below). Other parameters are provided for as explained in the next paragraphs.

EPA expects that from time to time some parameter changes will occur; of course many parameters will remain the same, but some will disappear and other, new parameters will appear.

When considering lead time for parameters which have remained the same (those which appeared on vehicles in the same engine family in the previous model year) EPA must give adequate notice to the manufacturer before determining that any of those parameters are subject to adjustment. EPA has no lead time concerns about parameters which disappear, but is concerned about the sudden appearance of new parameters. For new parameters, the available lead time is completely under the manufacturers' control. The revised test procedure requires EPA to determine no later than the selection of the emission test fleet those parameters that it will adjust. However, EPA will respond to information whenever it is presented by the manufacturer. Thus, the manufacturer can assure long lead time for new parameters by providing early information.

EPA will not allow new, maladjustment-prone parameters to begin production just because EPA did not learn of their planned introduction. To do so would negate the general scope of the regulations. EPA's policy will be to make every reasonable effort to facilitate product innovations by advising the manufacturer regarding new parameters, once informed of them.

HOW SHOULD PARAMETER ADJUSTMENT BE IMPLEMENTED FOR SEA?

Several adverse comments were received from manufacturers concerning the NPRM's provisions for parameter adjustment during SEA testing. The manufacturers objected to the possibility that EPA would revise its determination of the adequacy of physical limits or other means used to limit adjustability after production begins. The manufacturers claimed that such revisions could impose new performance requirements for production vehicles, of which they would be unaware when they decided to begin production.

The intent of the original proposal was not to have EPA revise the determination of the adequacy of the physical limit, but merely to determine whether the effectiveness of physical limitation in the production vehicle had diminished from that of the prototype design. Nevertheless, in response to manufacturers concerns and in recognition of the potential inconsistent application of the criteria for determining adequacy, the amendment proposed today is different from the NPRM.

The amended test procedure requires EPA to make several determinations early in the certification process that will be binding on EPA during both certification and SEA. The manufacturer will then be aware of the requirements production vehicles must meet, before production begins. These requirements will be the same as those for certification vehicles. Of course, if there is a material difference in the physical limitations between the Part I application and production vehicles EPA may consider the production vehicles uncertified.

The determinations are described fully under the next issue heading. Briefly, EPA must determine which parameters will be subject to adjustment, no later than when it selects the certification test fleet. EPA may not subsequently adjust any other parameter. Also, for each parameter EPA designates as subject to adjustment, EPA will at the same time determine the adequacy of any limits, stops, seals, or other means used to inhibit adjustment. Those that are found to be adequate limits to adjustment will not be exceeded in later SEA tests. The exact settings used during certification tests and SEA tests may be different, but the manufacturer will know which settings are potential test settings.

Some manufacturers claimed that in order for SEA to retain its present role, it is necessary that the SEA test procedure be left as it is presently, i.e., with no adjustment of parameters by EPA. This claim is without merit. In fact, SEA cannot play its proper role to ensure that new production vehicles comply with the same emission requirements met by certification vehicles, if parameters subject to adjustment during certification are not similiarly subject to adjustment during SEA. Moreover, it would make no sense for EPA to remove SEA test conditions further from conditions in-use (with regard to engine parameters) than conditions in certification testing.

WHAT FACTORS SHOULD INFLUENCE THE DETERMINATION OF ADEQUATE LIMITS AND THE PHYSICALLY ADJUSTABLE RANGES?

Parameters that have been determined to be subject to adjustment can be divided into two groups for purposes of this discussion: (1) parameters that are not likely to be adjusted on vehicles after they leave the factory because the parameters are effectively inaccessible or effectively sealed to the production setting; and (2) parameters that are likely to be adjusted in use by dealers, other mechanics, or owners.

Since a parameter in the first group will remain at its production setting, it is important that the vehicle be designed to meet emission standards at all settings expected to occur in production. This final rule ensures this by allowing EPA to determine an official physically adjustable range equal to the range of production variation specified by the manufacturer in the preliminary application, for the purpose of certification testing.[2] For the pur-

[2] This is analogous to selecting an emission-data vehicle with a component calibration (e.g., carburetor flow curve) other than

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pose of SEA testing, the physically adjustable range will contain only the actual production setting of the vehicle being tested. From time to time, production tolerances may exceed the ranges identified in the preliminary application for certification. When this happens, EPA will not automatically consider a vehicle with such tolerances to be noncertified; rather it will test the vehicle to determine compliance, with the parameter left adjusted to the actual production setting.

For a parameter in the second group, the physically adjustable range depends on the location of the adequate physical limits or stops, if any. EPA will determine whether the physical limits or stops used by the manufacturer to establish its intended physically adjustable range are adequate.

If they are, the official physically adjustable range will consist of all settings between those limits or stops. EPA may consider the limits or stops to be located at their production extremes when determining which settings are included in the physically adjustable range that will apply for certification.[3] For the purpose of SEA testing, the actual location of the limits or stops on the vehicle being tested will be used, and the limits or stops may not be exceeded by EPA when it adjusts the vehicle. Again, if from time to time production tolerances exceed those identified in the preliminary application and result in a limit or stop being located beyond the extremes identified in the application, EPA may adjust the parameter up to the limit or stop as it is actually located rather than consider the vehicle to be noncertified.

If EPA judges the manufacturer's intended limits or stops to be inadequate, EPA will consider the adequacy of any limits or stops beyond the intended ones and determine the physically adjustable range accordingly.

Thus, the group to which a parameter belongs depends on whether it is effectively sealed or inaccessible. For a parameter in the second group, the physically adjustable range will greatly depend on the adequacy of whatever physical limits or stops are present. The general criterion to be used in determining whether a parameter is effectively sealed or inaccessible and whether a physical limit or stop is adequate will be the reasonableness of expecting that access will be gained or that a seal, limit, or stop will be overcome on in-use vehicles. Once made during certification, this determination will be final for SEA as well.

In the preamble to the NPRM, EPA elaborated this general criterion into three specific criteria to be used in determining whether a parameter was effectively sealed or inaccessible. EPA stated that any one of the following conditions would be grounds for EPA determining that a parameter was adjustable:

(1) The parameter was adjusted prior to the vehicle being delivered to the dealer and the adjustment mechanism was not disabled;

(2) Manufacturer service manuals or bulletins contain procedures for adjusting the parameter or statements indicating that it can be adjusted; or

(3) The parameter can be adjusted quickly (in less than one half hour) or inexpensively (cost less than $20, including any replacement of parts) with the use of simple or inexpensive tools whether or not such tools are of common or of special design.

After considering the many comments on these criteria, EPA has decided that a case may arise in which it would be unreasonable to conclude that it was likely that a parameter would be adjusted on in-use vehicles, despite the fulfillment of one of these three conditions. Therefore, EPA will not treat these three conditions as sufficient. It will, however, weigh them carefully. Also, EPA will consider as accessible and adjustable any parameter for which manufacturer service manuals or bulletins describe routine adjustment procedures. Manufacturers may safely continue to describe procedures intended only for non-routine use, e.g., during major engine or carburetor repair, EPA-ordered recall, or high-altitude performance adjustments.

Two manufacturers requested that parameters be considered effectively inaccessible or sealed, and physical limits or stops be considered adequate, if special tools are needed in order to adjust the paramenter or to exceed the physical limits or stops. As it is possible for special tools to become widely available, EPA cannot grant this request. EPA may consider a parameter to be accessible and adjustable, and physical limits or stops to be inadequate, even though special tools are required.

One manufacturer requested that EPA consider a parameter to be effectively inaccessible or sealed, and physical limits or stops to be adequate, if the adjustment procedure takes more than 30 minutes to perform or costs more than $20. Another manufacturer thought that this preamble example was actually being proposed by EPA and pointed out that, in its opinion, it would simply encourage manufacturers to increase the cost and time of routine adjustments to more than $20 and 30 minutes so that they would no longer be considered adjustments, without reducing the need for those adjustments.

After considering these comments, EPA deems it appropriate to consider limits on adjustability as adequate whenever the adjustment procedure takes more than 30 minutes or costs more than $20, unless the procedure is described as routine in manufacturer service manuals or bulletins, surveillance data indicate that in-use adjustment is likely, or the manufacturer's estimates of cost or time are unreasonable. The $20 figure is based on 1978 price levels, and will be adjusted as necessary to account for inflation.

The preamble to the NPRM also gave several design examples. These were chosen to provide guidance on how EPA will evaluate the adequacy of the inaccessibility of an adjustment mechanism and the adequacy of physical limits, stops, and seals. Two objections were made to these examples. One was that EPA did not commit itself in some of the examples, but instead qualified them with the word "probably". EPA agrees to commit to the examples and has included them in the regulatory language of § 86.081-22(e). The second was that it was not feasible to manufacture a carburetor that had connecting choke links that fit EPA's examples of nonadjustable, bendable members. EPA has determined that it is possible to manufacture such a carburetor.

EPA has considered the feasibility of controlling those parameters designated in these regulations for initial control (See "Which Parameters will be Initially Affected?" below) and will in the future consider feasibility of control before additional familiar parameters are designated for control. The selection of the parameters cited as being subject to adjustment by EPA in specific years was based on a finding that the emissions standards for those years can be met, allowing for such adjustments.

For completeness, the design examples are restated here in revised form.

(1) Idle Mixture Screw—The idle mixture will be considered to be nonadjustable if the idle mixture screw is recessed within the carburetor casting and sealed with lead, thermosetting plastic, or an inverted elliptical spacer or sheared off after adjustment at the factory, in such a way that the adjustments cannot be accomplished in any of these circumstances with simple

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the nominal production calibration. The only difference is that the selection comes when the test setting is chosen from within the official physically adjustable range rather than when the emission data vehicle itself is chosen for the test fleet. EPA has in the past interpreted the existing certification regulations as giving it authority to select emission data vehicles with such off-nominal calibrations. Thus, this portion of the final rule serves to clarify existing authority in light of the substantive changes in the test procedure.

[3] The explanation in the previous footnote applies here also.

tools in a short time period (approximately one-half hour).

The idle mixture will be considered to be adjustable if the only deterrent to adjustment consists of a plastic cap placed over the idle mixture screw.

(2) Choke Bimetal Spring Cover—The choke mechanism will be considered to be nonadjustable if the plate covering the bimetal spring is riveted or welded in place, or held in place with nonreversible screws.

The choke will be considered to be adjustable if the plate covering the bimetal spring is merely held in place with screws which can be removed with the use of simple or inexpensive tools whether or not such tools are common or of special design.

(3) Elongating or Bending Adjustable Members—Parameters which may be adjusted by elongating or bending adjustable members (e.g., the choke vacuum break) will be considered nonadjustable if the elongation of the adjustable member is limited by design or, in the case of bendable members, is constructed of a material which when bent would return to its original shape after the force is removed (plastic or spring steel materials).

Parameters which may be adjusted by elongating or bending adjustable members will be considered to be adjustable.

(4) General.—A physical limit would generally be considered adequate provided that travel or rotation limits could not be exceeded with the use of simple and inexpensive tools (screwdriver, pliers, open-end or box wrenches, etc.) without incurring significant and costly damage to the vehicle or control system. Stops that can readily be broken off or otherwise eliminated or overcome without disabling the component's function may be broken off or overridden prior to certification or SEA testing. Limits on threaded adjustments would be considered adequate if the threads were terminated, pinned or crimped so as to prevent additional travel without breakage or need for costly repairs. A physical limit would be considered adequate if the adjustment were ineffective at the end of the limits of travel regardless of additional forces or torques applied to the adjustment.

While these examples do not encompass every possible adjustable parameter, or the many possible methods which could be employed to render an adjustment effectively nonadjustable, the guidance provided by these specific illustrations may be applied to many analogous situations. These examples will not be considered binding on the Administrator when making his determinations of adjustability if manufacturer service manuals or bulletins describe routine adjustment procedures for a parameter or if surveillance data indicate that in-use maladjustment is likely. As noted earlier, once the Administrator has made the parameter adjustment determinations for a model year those determinations are final. They may not be revised for that model year, either for certification or for later SEA testing, even if EPA acquires surveillance data indicating that in-use maladjustment is more prevalent than when the Administrator made the determinations.

Several manufacturers requested that specific, objective criteria for evaluating the adequacy of the inaccessibility of a parameter and the adequacy of limits, stops, and seals be included in the text of the regulation. EPA has not been able to develop criteria that would be adequate for every situation, and the manufacturers did not suggest any suitable criteria even though the NPRM invited them to do so. (The manufacturers' responses and the EPA Summary and Analysis of Comments are available; see Availability of Documents.) However, in response to the general desire by some manufacturers to have criteria in the regulation and not just in this accompanying explanation, EPA has incorporated those of the above design examples which are restrictive on EPA into the text of the regulatory language.

WHAT FACTORS SHOULD INFLUENCE THE SELECTION OF TEST SETTINGS?

The gist of most comments dealing with the selection of test settings for parameters was that EPA should not deviate from the manufacturer's recommended setting if doing so degraded vehicle driveability (e.g., cold start or stalling) or performance (e.g., fuel economy or acceleration). EPA has not accepted this recommendation, because the likelihood that a parameter setting will occur on in-use vehicles is not solely a function of its impact on driveability or performance. To achieve the goals of this regulation, EPA must be free to select as a test setting any setting which will occur with significant frequency on in-use vehicles, not just the setting which will occur most frequently. A setting may occur with significant frequency on in-use vehicles even though another setting gives better driveability or performance. EPA's Restorative Maintenance Study investigated the driveability and fuel economy impacts of the maladjustments observed in the study, and found that the maladjustments had only slight, and sometimes degrading, impacts. EPA concludes from this that car owners and mechanics in maladjusting are not universally successful in obtaining the best possible driveability and performance. EPA recognizes that driveability effects can influence the likelihood of in-use maladjustment to particular settings. The Administrator intends to consider information on driveability effects when it is reasonably available. The Administrator will not treat such effects as a controlling consideration, however. Sections 202(a)(4) and 206 (a)(3) of the Clean Air Act require manufacturers to provide safe vehicle driveability in their certified configuration. Therefore, these regulations have the effect of requiring safe driveability at the setting that has been sealed from further adjustment or within the physically adjustable range. The Administrator will not operate the vehicle at parameter settings which produce unsafe vehicle driveability when settings are available which will produce safe vehicle driveability, assuming that any unsafe vehicle driveability condition is apparent to the driver.

ADEQUACY OF DUE PROCESS

Some manufacturers claimed that they would not be afforded adequate due process under the revised test procedure proposed in the NPRM. The common contention was that EPA's determinations of which parameters would be maladjusted during certification testing and of the adequacy of the steps taken by a manufacturer to limit the adjustability of those parameters, and the first opportunity to appeal these determinations, would come too late in the certification process. Specifically, it was claimed (1) that unreasonable determinations made just prior to the emission test (as would be possible under the provisions of the NPRM) could deprive a manufacturer of its investment in certification vehicles and production tooling if allowed to stand, and (2) that because of delays this investment could not be recovered even if the unreasonable determinations were corrected when appealed to the Administrator or the courts. A similar situation was claimed to exist if a parameter determination were revised prior to SEA tests.

The final rule being promulgated today has been changed in response to these objections. The changes are intended to provide a manufacturer a genuine opportunity to appeal EPA decisions, by moving these decisions forward in time.

A manufacturer will now be notified of which parameters will be subject to adjustment for certification and SEA testing and of the limits for each parameter. EPA will do this no later than when it selects the emission data test fleet. EPA will make the determinations and notify the manufacturer even earlier, if the manufacturer makes this possible by submitting the required descriptions of its parameters and their physical limits in advance of

its full preliminary application for certification. The manufacturer will have time to appeal EPA's initial determinations, or accept them and change its designs or production plans accordingly if necessary, before investing further in product development, certification vehicles, or production tooling. If the manufacturer chooses to appeal the initial determinations, it may do so either by requesting the Administrator for a hearing or through the less formal procedures which EPA normally affords manufacturers.

As discussed in greater detail above (see "Lead time and Feasibility Considerations"), more time will be available for a manufacturer to dispute an EPA decision to adjust an existing parameter for the first time. A familiar parameter (e.g., one that was present on a vehicle in the same engine family in the previous model year) may be newly determined by EPA to be subject to adjustment only if EPA has previously notified the manufacturer that it might do so as discussed earlier. If the manufacturer feels it would be unreasonable for EPA to adjust the parameter or that there is insufficient leadtime to modify the design of the parameter, it can appeal the EPA decision at once. A deadline of September 1 of the calendar year two years prior to the model year has been added to the regulation, by which EPA must give notice or delay one model year. This deadline assures time for an appeal. With these changes, the revised test procedure does provide manufacturers with adequate due process.

WHAT PARAMETERS WILL BE INITIALLY AFFECTED?

1. *Gasoline-Fueled Vehicles With Carburetion Systems.* On the basis of a technical evaluation of data from surveillance studies of in-use vehicles and other information, EPA concludes that the following parameters are maladjusted on in-use vehicles with significant frequency and with concomitant increases in emissions (See Summary and Analysis of Comments—item 1): idle air/fuel mixture, idle speed, choke valve action (e.g., bimetal spring tension and vacuum pull-off adjustments), and initial spark timing. These parameters are therefore of immediate concern to EPA. It is feasible for manufacturers to redesign all of these parameters so as to comply under the revised test procedures. These parameters have therefore been specifically included in the regulation as ones that may be determined to be subject to adjustment. Depending on the design changes made to these parameters by each manufacturer, EPA will determine them to be subject to adjustment according to the schedule described under the next issue heading.

EPA has identified the following parameters as having significant potential for maladjustment with concomitant increases in emissions, although EPA has not observed their maladjustment on in-use vehicles: part (or full) throttle mixture, accelerator pump, fuel level adjustment (float) in fuel bowl, and deceleration speed control (dash pot). EPA may examine these familiar parameters to determine if they are reasonably likely to be maladjusted or EPA may conduct in-use vehicle studies to determine the frequency of maladjustment. In any case, EPA will be required to give manufacturers adequate notice before determining any of these to be subject to adjustment. This notice must be provided prior to the traditional start of certification for the model year. For purposes of this notice, this will be deemed to be September 1 of the calendar year two years prior to the model year, e.g., September 1, 1980 for the 1982 model year. This deadline for EPA notification has been selected on the basis of the time needed to conduct an appeal. Often the lead time requirement will be longer and notice will be given earlier.

Comments received on the NPRM raised three major objections concerning the feasibility of carbureted vehicles complying with the new test procedure. Specifically, comments were received questioning the feasibility of compliance in the area of initial spark timing, idle speed, and bendable members on chokes.

Spark timing. Some manufacturers interpreted the NPRM to mean that the distributor would have to be fixed in place during assembly in such a way that freedom of motion could not be achieved again in less than 30 minutes, and contended that this was not feasible. This interpretation is not correct. It is possible to retain several degrees of initial timing adjustability in the retard direction without causing emission violations. EPA encourages manufacturers to do so, to facilitate timing retard when necessary in unusual circumstances. Further, EPA did not and does not intend the 30-minute criterion to be the only definition of an adequate physical limit on adjustability. EPA may consider measures to be adequate even when they can be overcome in less than 30 minutes. Again, the general criterion will be the reasonableness of expecting that owners and mechanics will overcome such features. The manufacturers of the small minority of vehicles which would otherwise use ignition systems with breaker points may find it advantageous to adopt breakerless ignition systems (a readily available technology) in order to eliminate timing variations due to point wear and the adjustability needed to compensate for them.

Idle speed. The revised test procedure itself does not impose any requirement that manufacturers restrict the adjustability of parameters. It only requires that certification and SEA vehicles meet emission standards at parameter settings likely to occur on in-use vehicles. One obvious approach a manufacturer may use to ensure compliance with this requirement for a parameter is to physically limit the adjustability of that parameter to only those settings which allow the vehicle to pass emission tests. Some manufacturers expressed serious concern in their comments that this approach is not feasible for conventional idle speed controls and that alternative controls are not feasible by the implementation date proposed in the NPRM.

EPA recognizes the merit of these concerns. It appears that on some vehicles the reduction in internal engine friction during the first few thousand miles of operation, combined with the sensitivity of exhaust emission levels to idle speed, is such that the motion of the idle speed adjustment mechanism cannot be limited to a range of settings that will allow both a "green" SEA vehicle and a "worn in" certification vehicle to pass the emission test. This situation could be remedied by closed-loop control of idle speed, but at higher cost and longer lead time.

Given the nature of the in-use maladjustment problem associated with idle speed, such closed-loop control is expected to provide minimal advantages over the following approach: EPA will not select an idle speed test setting for *SEA vehicles* which corresponds to a *lower* engine idle speed (in revolutions per minute) than could be achieved within the physically adjustable range of a vehicle with 4,000 miles of service accumulation. This minimum engine speed will be determined based on past tests of certification vehicles or other information provided by the manufacturer. Similarly, EPA will not select an idle speed test setting for *certification vehicles* which corresponds to a *higher* engine idle speed than could be physically achieved on the same vehicle with "zero" miles of service accumulation.

This policy should ensure that manufacturers can comply with the revised test procedure insofar as idle speed is concerned, without adopting closed-loop control. Manufacturers will be able to retain the adjustability needed to compensate for engine break- in. They will, however, have to restrict the range of motion of the idle speed screw so that a 4,000-mile certification vehicle will meet standards at its lowest possible idle speed as well as at the idle speed that is the highest possible on an SEA vehicle, and so that a new SEA vehicle will meet

standards at its highest possible idle speed as well as the idle speed that is the lowest possible on a 4,000-mile vehicle. The policy will apply indefinitely. It has been incorporated into the language of the regulations.

Bendable members. Some manufacturers claimed it was not technically feasible to replace present bendable links in the choke assemble with links made of plastic or spring steel materials, two examples of non-adjustable designs given in the preamble to the NPRM. The reason given was that these links must be bendable to provide for adjustments during assembly and to allow standardization of parts between models. These claims may have merit in that bendable links as used now are a cost-saving convenience for the vehicle manufacturer. However, EPA concludes that it is possible to replace bendable links with links that are adjusted by threaded connections. These connections could then be sealed or crimped so that they were less susceptible to improper adjustment by owners and mechanics. Bendable members can also be eliminated by using a greater number of fixed length members during assembly. It is also feasible to eliminate chokes with bendable links and replace them with integral chokes which lack bendable members and can more easily be given a limited range of adjustability or sealed after assembly and final adjustment.

2. *Gasoline-Fueled Vehicles with Fuel Injection Systems.* EPA has not surveyed in-use vehicles of this type to date and therefore has not observed maladjustments of parameters specific to the type. However, the similarity between the idle mixture, idle speed, and initial spark timing adjustments on these vehicles and the same adjustments on vehicles with carburetion systems is so close that EPA can expect similar frequencies and effects of in-use maladjustment. EPA will therefore treat these three parameters on fuel-injected vehicles in the same way it treats them on carbureted vehicles and on the same schedule. In addition, EPA will continue to consider for future action injection timing, fuel pressure, and adjustable sensors that can affect air fuel computation in electronic fuel injection systems, each of which has been identified as having a significant potential for in-use maladjustment.

3. *Diesel-Powered Vehicles.* Only a very small number of in-use light-duty vehicles and light-duty trucks are powered by Diesel engines, so no surveillance data on their possible in-use maladjustment are available. However, by the early 1980's a significant fraction of new vehicles may fall in this category. EPA has examined the design of vehicles in this category and has identified the following parameters which are or may be adjustable on some models and for which there may be actual or perceived incentives for maladjustment by owners or mechanics: turbocharger waste gate control, cold timing control, adjustable aneroid control, full load fuel control stops, idle speed, high idle speed, fuel supply pressure, turbocharger aneroid control fuel rate modifier, governor control, and adjustable EGR rate.

EPA's determination of which if any of these parameters will be subject to adjustment after the revised test procedure becomes applicable will depend on information supplied by the manufacturer and surveillance data that become available. These will be evaluated according to the criteria and guidelines presented above in the discussion of major issues. EPA will give particular attention to Diesel parameters which are as easily adjusted as the parameters which have been observed to be maladjusted on in-use gasoline-powered vehicles and for which there are equivalent incentives for maladjustment, or for which the manufacturer's recommended adjustment procedure is such that it likely will frequently be performed incorrectly. In short, analogies between Diesel and gasoline engines will be used where applicable in order to ensure equitable treatment of the two in EPA's technical evaluation.

IMPLEMENTATION SCHEDULE

The proposed implementation date of 1980 will not give adequate lead time for all manufacturers to meet the requirements of the revised test procedures for any of the parameters identified under the previous issue heading. EPA analysis of comments by manufacturers (see Summary and Analysis of Comments—Item 7) indicates that all manufacturers will be able to comply by 1981 insofar as idle mixture and choke valve action are concerned. These parameters potentially need no adjustment during a vehicle's life. If manufacturers upgrade the vehicles' engines and emission control systems where necessary to realize this potential and then seal or fix these parameters to the recommended settings during engine assembly, one of the simpler approaches to compliance, no serviceability or driveability problems will result.

The idle speed and initial spark timing parameters are ones which do require adjustment on some or all vehicles while in service. EPA wishes to ensure that manufacturers have sufficient lead time to develop restricted ranges of adjustability that will allow the necessary adjustments while providing emissions compliance. Implementation of the revised test procedure for these two parameters beginning in the 1982 model year will provide the necessary lead time.

Therefore, the amendment being promulgated today allows EPA to determine idle mixture and choke valve action parameters to be subject to EPA adjustment beginning with the 1981 model year. Beginning with the 1982 model year, idle mixture, choke valve action, idle speed, and initial spark timing may be so determined. This staged schedule applies to gasoline-fueled LDV's and LDT's with carburetion systems. Gasoline-fueled LDV's and LDT's with fuel injection systems will follow the same schedule, except choke parameters will not be affected. There is no schedule for adjusting specific parameters on Diesel-powered LDV's and LDT's.

This schedule does not exclude the possibility of EPA adjusting a new parameter in 1981 or any subsequent model year. Also, existing parameters may be adjusted in 1981 or any subsequent model year if EPA has previously notified the manufacturer concerned. These possibilities were explained at greater length in the discussion of the issue "Lead Time and Feasibility Considerations", above.

One manufacturer requested that the effective date for LDT's be later than for LDV's. After considering the costs and feasibility of compliance within the allowed periods, EPA had determined that the implementation schedule described here is necessary and adequate for both LDV's and LDT's. Consequently, this action promulgates the same schedule for both classes.

ADDITIONAL TESTING REQUIRED TO GENERATE FUEL ECONOMY DATA

At present, EPA intends to continue to collect fuel economy data only from vehicles adjusted to manufacturer's specifications after it implements this revision to the emission test procedure. The alternative, collecting fuel economy data using the same parameters settings as selected for emission testing, would be difficult to implement while retaining the effectiveness of the parameter adjustment concept, the representativeness of the fuel economy data base, and the equitable treatment of different manufacturers. While supporting EPA's rejection of the latter alternative, several manufacturers pointed out that EPA's intention will necessitate an increase in the amount of testing. EPA recognizes that some emission data and fuel economy data which previously were collected in a single test will have to be collected in separate tests. The increase in the amount of testing can be kept small, however. There will be many instances in which the manufacturer's reommended parameter setting will be EPA's preferred test setting

under the revised emission test procedure. This will be the case if it is the only setting reasonably likely to occur on in-use vehicles or if the recommended setting is the setting which maximizes emissions. EPA will also be able to select the recommended setting as the emission test setting in a substantial fraction of the remaining instances and still retain the effectiveness of the parameter adjustment regulations. When the recommended setting has been chosen as the emission test setting for each of the parameters subject to adjustment, the fuel economy data can be gathered in the same test as the emission data. When separate tests are unavoidable, EPA will partially reduce its own testing load by relying more heavily on the results of tests performed by manufacturers.

EFFECT OF THIS RULE ON RECALL AND WARRANTY ACTIONS

As stated in the preamble to the Notice of Proposed Rulemaking, these regulations will not alter current EPA practice with regard to testing in support of recall or warranty activities under section 207 of the Clean Air Act. The determinations made by EPA for vehicles tested during certification or SEA as to which parameters will be subject to adjustment, the adequacy of the limitations on adjustment and the physically adjustable ranges will not constitute similar determinations with respect to in-use vehicles. Therefore, in-use vehicles determined to be in conditions of adjustment different from the limits specified for certification and SEA may be tested in such conditions and may be used in support to recall or warranty actions insofar as the criteria of section 207 is met. Placing constraints on the conditions in which in-use vehicles may be tested would frustrate the intent of the in-use compliance provisions of the act.

In particular, the fact that one or more of a vehicle's parameters are not set to a manufacturer's recommended settings is not *per se* determinative of whether or not a vehicle has been properly maintained and used. Similarly, the fact that one or more of a vehicle's parameters are adjusted beyond the allowable settings determined by EPA for certification and SEA vehicles is not determinative of whether or not a vehicle has been properly maintained and used. Manufacturers are advised not to rely on certification or SEA determinations as definitions of the state of "proper maintenance and use" insulate manufacturers from their continuing liability to remedy nonconformities on in-use vehicles. Comments were received from certain manufacturers concerning their views on this issue as they relate to the parameter adjustment regulations. Such comments are not relevant in the context of this particular rulemaking and have not caused EPA to reverse its current practice.

HIGH ALTITUDE PERFORMANCE ADJUSTMENTS AND EMISSION STANDARDS

The connection between this final rule and current developments in the areas of high altitude performance adjustments and emission standards needs explanation. EPA anticipates that this connection may be of concern to some parties.

With the exception of the 1977 model year, manufacturers have been allowed to sell in high altitude areas vehicles which were designed for operation in low altitude areas and which had demonstrated emission compliance only under low altitude conditions. Manufacturers have also been allowed to certify and sell separate high altitude configurations after demonstrating emission compliance under high altitude conditions. In addition to the two types of new vehicles sold in high altitude areas, substantial numbers of in-use vehicles have relocated to high altitude areas from low altitude areas. All of these relocated vehicles were designed for low altitude operation.

When low altitude vehicles with current emission controls (i.e., vehicles without three-way catalysts) are operated at high altitude they tend towards overly fuel-rich operation. This can cause higher carbon monoxide (CO) and hydrocarbon (HC) emissions, as well as driveability and performance problems. There are modifications—known as high altitude performance adjustments—which can be made to alleviate the driveability and performance problems. These modifications can also reduce CO and HC emissions. These reductions are usually accompanied by an increase in emissions of oxides of nitrogen (NOx) to levels which are typical of vehicles operated at low altitude. The exact changes involved in high altitude performance adjustments differ for different engines, but may involve adjustment of the idle mixture and other fuel system calibrations, choke bimetal spring tension, and ignition timing.

Prior to the 1977 Amendments to the Clean Air Act, manufacturers and dealers were discouraged from performing such modifications because of their concern that these actions might be considered in some cases to be prohibited tampering.

The 1977 Amendments expanded the tampering prohibition to include independent mechanics as well as dealership mechanics. They also added a new section 215 which exempts high altitude performance adjustments from the prohibition provided they follow procedures approved by the Administrator. EPA is in the process of developing regulations to implement section 215.

EPA is also in the process of developing separate emission standards for 1981 through 1983 model year vehicles produced for sale in high altitude areas, as it is allowed to do under the 1977 Amendments. These standards will require that all new vehicles sold in high altitude areas demonstrate emission compliance under high altitude conditions. EPA expects that vehicles complying with these standards will also have satisfactory driveability and performance and will not need any high altitude performance adjustments. EPA also expects that the 1981 through 1983 standards will not result in a restriction in the availability of some models, as occurred during the 1977 model year. EPA bases its expectations that vehicles will be produced with acceptable driveability on an important difference between the approach it used for 1977 and the approach it is considering for the 1981 through 1983 standards. For 1977, EPA restricted the sale in high altitude areas of vehicles not designed and certified for operation in those areas. EPA did not require manufacturers to design and certify any vehicles for high altitude, and some manufacturers did not design and certify as many models for high altitude as they did for the larger, low altitude market. For 1981 through 1983, EPA is considering *requiring* manufacturers to certify a high altitude version of every vehicle configuration they wish to sell in low altitude areas. Having gone to the expense of doing so, the manufacturers will be more likely to produce and sell such versions also, or at least to produce and distribute to their dealers the parts needed to change a low altitude version to a high altitude version before sale, than they were in 1977. Thus, there is no cause for concern about the connection between this final rule on parameter adjustment and new vehicles produced for sale in high altitude areas.

The other area of potential concern is with 1981 through 1983 model year low altitude vehicles which are relocated to high altitude areas. EPA anticipates that as a result of this final rule, manufacturers will make it more difficult to adjust some of the parameters which are sometimes adjusted as part of high altitude performance adjustments on current vehicles. There will likely be an increase in the cost of making the adjustments for some vehicles because of the increased difficulty in gaining access to adjustment mechanisms. EPA does not expect the increase to be severe.

One of the factors which will keep the increase smaller than it would otherwise be is the expected widespread use of three-way catalysts in 1981 and

later years. Vehicles with this type of emission control system will inherently respond to altitude changes differently than current vehicles. Their closed-loop control of fuel/air mixture during most modes of operation will eliminate the overly fuel-rich mixtures that are responsible for driveability and emissions degradation in those modes.

Rich mixtures during the cold start and idle modes may remain as problems. However, there are steps which a manufacturer can take to alleviate them. Manufacturers should still be able to retain enough idle mixture adjustability to allow leaning adjustments in the idle mode, without risking noncompliance under the revised test procedure. Alternatively, closed-loop control can be extended to include the idle mode. When choke adjustments are essential, pressure compensating systems can be used to make them automatic.

In contrast to current low altitude vehicles, vehicles with three-way catalysts are expected to show an improvement in fuel economy when relocated to higher altitude. Timing adjustments will therefore not be needed to retain fuel economy, as they are on current vehicles. EPA expects that electronic spark control will be used on many vehicles. This will facilitate timing adjustments when they are necessary.

The methods used to accommodate altitude relocation for 1981 through 1983 will ultimately be selected by each vehicle manufacturer. By 1981, the section 215 provisions will be implemented and will legally allow whatever appropriate adjustments the manufacturer does recommend for relocated vehicles.

Finally, the Clean Air Act requires all 1984 and later model year light-duty motor vehicles to meet the statutory emission standards at all altitudes no matter where sold. EPA expects that this requirement will result in vehicles which also have good driveability and performance at all altitudes. If so, the revised test procedure will no longer be of any concern relative to high altitude performance adjustments.

DRIVEABILITY, SAFETY, AND RESTRICTED ADJUSTABILITY

EPA has noted with much concern that some manufacturers have produced vehicles which were capable of complying with emission standards if adjusted to the manufacturer's recommended settings, but which gave poor driveability characteristics (e.g., hard cold start, stalling, stumble, surge) at those settings. Once in use, these vehicles were frequently maladjusted in (not always successful) attempts to restore reasonably good driveability. Such maladjustments increase emissions, often very substantially.

EPA is certain that vehicles can be designed and produced that will give low emissions and safe and acceptable driveability at the same parameter settings. Many vehicles have been produced already that do so. The more sophisticated engine controls of the future will make the task easier in many ways. This situation will not change as a result of this regulation or of the more stringent emission standards scheduled for the future. However, EPA realizes that there may be short-run market advantages for a manufacturer that neglects to develop and use technology which will give both emission compliance and driveability. Therefore, it is possible that the problem of the past will recur. If it does, it will likely appear in the form of poor driveability, rather than in the form of excessive in-use emissions, since the regulation being promulgated today will make it more difficult to maladjust vehicles in an attempt to better driveability.

Section 202(a)(4) of the Clean Air Act as amended prohibits the use of emission control devices, systems, or elements of design if they cause or contribute to an unreasonable risk to public health, welfare or safety in their operation. Section 206(a)(3)(A) prohibits EPA from certifying a vehicle unless the manufacturer establishes to the satisfaction of the EPA Administrator that the vehicle meets the requirement of section 202(a)(4). While these two provisions deal explicitly with emissions of unregulated pollutants, they are not limited to only risks posed by such pollutants. EPA interprets the two provisions to include risks to safety caused by poor vehicle driveability. Together, the provisions give EPA the authority to establish regulations (standards and test procedures) for safe vehicle driveability.

EPA is not establishing or formally proposing specific safe drivability criteria at this time. Instead, this amendment requires the manufacturer to ensure safe vehicle driveability when it establishes the physically adjustable range of each parameter. EPA will closely monitor the performance of in-use vehicles. Moreover, EPA will develop and issue such safe driveability criteria as may be needed to assure redress under the Clean Air Act for driveability problems with safety implications. These efforts will, of course, be coordinated with the National Highway Traffic Safety Administration.

ECONOMIC IMPACT

The Environmental Protection Agency has determined that this rule does not constitute a "significant" regulation requiring preparation of a Regulatory Analysis under Executive Order 12044.

The average increase in the cost of new vehicles during the initial implementation of this rule is expected to be negligible. The majority of vehicles can be brought into compliance through minor changes. An incremental cost of $3.00 for these vehicles was estimated in the preamble to the NPRM, and manufacturers' comments generally supported this estimate. Vehicles for which more costly changes are required are expected to constitute a small minority.

There will be two possible effects on service costs over a vehicle's useful life. Manufacturers may produce vehicles that can be tuned-up in less time than presently or that need less frequent tune-ups. Counteracting this may be an increase in the time and cost required to make certain adjustments or to service or replace certain parts in unusual situations (e.g., repair of crash damage, part failure, or change of altitude). (Manufacturers may choose to make design changes that are more costly than the $3.00 per vehicle estimate in order to reduce this potential increase in service costs. Also, warranty claims within the standard one-year warranty period will transfer part of the service cost impact onto new vehicle prices.)

The actual fuel economy of in-use vehicles should improve somewhat since the opportunity for maladjustments, which EPA has found are generally to the detriment of fuel economy, will be limited by this action.

EPA expects that the average net effect of service cost and fuel cost impacts will be small compared to present lifetime operating costs.

ENVIRONMENTAL IMPACT

This change to the test procedure does not cause EPA's emission standards to be more stringent than those prescribed by section 202 of the Clean Air Act since it requires test vehicles to meet emission standards in states of adjustment that are likely to occur in vehicles in use. The change will result in a significant improvement in air quality, particularly with respect to carbon monoxide and oxidant concentrations, by reducing the extent to which in-use vehicles exceed the emission standards.

EPA estimates that had this regulation been in effect for the 1975 and 1976 model year vehicles, their contribution of CO emissions would have been reduced an average of about 65% and their contribution of HC emissions by about 40%.

REVIEW OF ACTION AFTER 5 YEARS

EPA intends to review the effectiveness and need for continuation of the provisions contained in this action no

more than five years after initial implementation, e.g., the end of the 1985 model year. In particular, EPA will solicit comments from affected parties with regard to cost and other burdens associated with compliance and will review data on cars in use before and after implementation to determine how effective these measures have been.

AVAILABILITY OF DOCUMENTS

Copies of EPA's summary and analysis of comments to the Notice of Intent to Develop Rulemaking and NPRM and supporting documentation are available for inspection and copying at the U.S. Environmental Protection Agency, Public Information Reference Unit, Room 2922 (EPA Library), 401 M Street, S.W., Washington, D.C. 20460. As provided in 40 CFR Part 2, a reasonable fee may be charged for copying services.

Dated: December 15, 1978.

DOUGLAS M. COSTLE,
Administrator.

Part 86 of Chapter I, Title 40 of the Code of Federal Regulations is hereby amended as follows:

1. By adding a new § 86.081-5 to read as follows:

§ 86.081-5 General standards; increase in emissions; unsafe conditions.

(a)(1) Every new motor vehicle (or new motor vehicle engine) manufactured for sale, sold, offered for sale, introduced, or delivered for introduction into commerce, or imported into the United States for sale or resale which is subject to any of the standards prescribed in this subpart shall be covered by a certificate of conformity issued pursuant to §§ 86.081-21, 86.081-22, 86.079-23, and §§ 86.079-29 through 86.079-34.

(2) No heavy-duty vehicle manufacturer shall take any of the actions specified in section 203(a)(1) of the Act with respect to any gasoline-fueled or Diesel heavy-duty vehicle which uses an engine which has not been certified as meeting applicable standards. Each heavy-duty vehicle manufacturer shall provide to the Administrator prior to the beginning of each model year a statement signed by an authorized representative which includes the following information:

(i) A description of the vehicles which will be produced subject to this section;

(ii) Identification of the engines used in the vehicles;

(iii) Projected sales data on each vehicle-engine combination;

(iv) A statement that the engines will not be modified by the vehicle manufacturer or a detailed specification of any changes which will be made. Changes made solely for the purpose of mounting an engine in a vehicle need not be included.

(v) A statement that the engine maintenance instruction supplied by the engine manufacturer, in compliance with § 86.079-38, will be furnished to the ultimate purchaser. If these maintenance instructions are modified, a detailed description of the modifications and a justification for each must be provided to the Administrator for review. The Administrator will notify the manufacturer of the determination whether the modified instructions are reasonable and necessary to assure proper functioning of the emission control system.

(b)(1) Any system installed on or incorporated in a new motor vehicle (or new motor vehicle engine) to enable such vehicle (or engine) to conform to standards imposed by this subpart.

(i) Shall not in its operation or function cause the emission into the ambient air of any noxious or toxic substance that would not be emitted in the operation of such vehicle (or engine) without such system, except as specifically permitted by regulation; and

(ii) Shall not in its operation, function, or malfunction result in any unsafe condition endangering the motor vehicle, its occupants, or persons or property in close proximity to the vehicle.

(2) In establishing the physically adjustable range of each adjustable parameter of a light-duty vehicle or light-duty truck, the manufacturer shall insure that, taking into consideration the production tolerances, safe vehicle driveability characteristics are available within that range, as required by § 202(a)(4) of the Clean Air Act.

(3) Every manufacturer of new motor vehicles (or new motor vehicle engines) subject to any of the standards imposed by this subpart shall, prior to taking any of the actions specified in section 203(a)(1) of the Act, test or cause to be tested motor vehicles (or motor vehicle engines) in accordance with good engineering practice to ascertain that such test vehicles (or test engines) will meet the requirements of this section for the useful life of the vehicle (or engine).

2. By adding a new § 86.081-21 to read as follows:

§ 86.081-21 Application for certification.

(a) A separate application for a certificate of conformity shall be made for each set of standards and each class of new motor vehicles or new motor vehicle engines. Such application shall be made to the Administrator by the manufacturer and shall be updated and corrected by amendment.

(b) The application shall be in writing, signed by an authorized representative of the manufacturer, and shall include the following:

(1)(i) *All vehicles and engines.* Identification and description of the vehicles (or engines) covered by the application and a description of their engine (vehicles only), emission control system and fuel system components. This shall include a detailed description of each auxiliary emission control device (AECD) to be installed in or on any certification test vehicle (or certification test engine).

(ii) *Light-duty vehicles and light-duty trucks only.* (A) The manufacturer shall provide to the Administrator in the preliminary application for certification:

(*1*) A list of those parameters which are physically capable of being adjusted (including those adjustable parameters for which access is difficult) and that, if adjusted to settings other than the manufacturer's recommended setting, may affect emissions;

(*2*) A specification of the manufacturer's intended physically adjustable range of each such parameter, and the production tolerances of the limits or stops used to establish the physically adjustable range;

(*3*) A description of the limits or stops used to establish the manufacturer's intended physically adjustable range of each adjustable parameter, or any other means used to inhibit adjustment;

(*4*) The nominal or recommended setting, and the associated production tolerances, for each such parameter.

(B) The manufacturer may provide, in the preliminary application for certification, information relating to why certain parameters are not expected to be adjusted in actual use and to why the physical limits or stops used to establish the physically adjustable range of each parameter, or any other means used to inhibit adjustment, are expected to be effective in preventing adjustment of parameters on in-use vehicles to settings outside the manufacturer's intended physically adjustable ranges. This may include results of any tests to determine the difficulty of gaining access to an adjustment or exceeding a limit as intended or recommended by the manufacturer.

(C) The Administrator may require to be provided detailed drawings and descriptions of the various emission related components, and/or hardware samples of such components, for the purpose of making his determination of which vehicle or engine parameters will be subject to adjustment for new certification and Selective Enforcement Audit testing and of the physically adjustable range for each such vehicle or engine parameter.

(2) Projected U.S. sales data sufficient to enable the Adminstrator to select a test fleet representative of the

vehicles (or engines) for which certification is requested.

(3) A description of the test equipment and fuel proposed to be used.

(4) (i) A description of the proposed mileage (or service) accumulation procedure for durability testing.

(ii) A description of the test procedures to be used to establish the evaporative emission deterioration factors required to be determined and supplied in § 86.079-23(a)(2).

(5) A statement of recommended maintenance and procedures necessary to assure that the vehicles (or engines) covered by a certificate of conformity in operation conform to the regulations, and a description of the program for training of personnel for such maintenance, and the equipment required.

(6) At the option of the manufacturer, the proposed composition of the emission-data and durability-data test fleet.

(c) Complete copies of the application and of any amendments thereto, and all notifications under §§ 86.079-32, 86.079-33, and 86.079-34 shall be submitted in such multiple copies as the Administrator may require.

(d) Incomplete light duty trucks shall have a maximum completed curb weight and maximum completed frontal area specified by the manufacturer.

3. By adding a new § 86.081-22 to read as follows:

§ 86.081-22 Approval of application for certification; test fleet selections; determinations of parameters subject to adjustment for certification and Selective Enforcement Audit testing, adequacy of limits, and physically adjustable ranges.

(a) After a review of the application for certification and any other information which the Administrator may require, the Administrator may approve the application and select a test fleet in accordance with § 86.080-24.

(b) The Administrator may disapprove in whole or in part an application for certification for reasons including incompleteness, inaccuracy, inappropriate proposed mileage (or service) accumulation procedures, test equipment, or fuel, and incorporation of defeat devices in vehicles (or on engines) described by the application.

(c) Where any part of an application is rejected, the Administrator shall notify the manufacturer in writing and set forth the reasons for such rejection. Within 30 days following receipt of such notification, the manufacturer may request a hearing on the Administrator's determination. The request shall be in writing, signed by an authorized representative of the manufacturer and shall include a statement specifying the manufacturer's objections to the Administrator's determinations, and data in support of such objections. If, after the review of the request and supporting data, the Administrator finds that the request raises a substantial factual issue, he shall provide the manufacturer a hearing in accordance with § 86.078-6 with respect to such issue.

(d) The Administrator does not approve the test procedures for establishing the evaporative emission deterioration factors. The manufacturer shall submit the procedures as required in § 86.081-21(b)(4)(ii) prior to the Administrator's selection of the test fleet under § 86.080-24(b)(1) and if such procedures will involve testing of durability-data vehicles selected by the Administrator or elected by the manufacturer under § 86.080-24(c)(1), prior to initiation of such testing.

(e) *Light-duty vehicles and light-duty trucks only.* When the Administrator selects emission data vehicles for the test fleet, he will at the same time determine those vehicle or engine parameters which will be subject to adjustment during certification and Selective Enforcement Audit testing; the adequacy of the limits, stops, seals, or other means used to inhibit adjustment; and the resulting physically adjustable ranges for each such parameter and notify the manufacturer of his determinations.

(1)(i) The Administrator may determine to be subject to adjustment the idle fuel-air mixture on gasoline-fueled vehicles (carbureted or fuel injected); the choke valve action parameter(s) on carbureted, gasoline-fueled vehicles; or any parameter on any vehicle (Diesel or gasoline-fueled) which is physically capable of being adjusted, may significantly affect emissions, and was not present on vehicles of the same engine family in the previous model year.

(ii) The Administrator may, in addition, determine to be subject to adjustment any other parameter on any vehicle which is physically capable of being adjusted and which may significantly affect emissions. However, the Administrator may do so only if he has previously notified the manufacturer that he might do so and has found, at the time he gave this notice, that the intervening period would be adequate to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period. In no event will this notification be given later than September 1 of the calendar year two years prior to the model year.

(iii) In determining the parameters subject to adjustment the Administrator will consider the likelihood that, for each of the parameters listed in paragraphs (e)(1)(i) and (e)(1)(ii) of this section, settings other than the manufacturer's recommended setting will occur on in-use vehicles. In determining likelihood, the Administrator will consider such factors as, but not limited to, information contained in the preliminary application, surveillance information from similar in-use vehicles, the difficulty and cost of gaining access to an adjustment, damage to the vehicle if an attempt is made to gain such access and the need to replace parts following such attempt, and the effect of settings other than the manufacturer's recommended setting on vehicle performance characteristics including emission characteristics.

(2)(i) The Administrator will determine a parameter to be adequately inaccessible or sealed if:

(A) In the case of an idle mixture screw, the screw is recessed within the carburetor casting and sealed with lead, thermosetting plastic, or an inverted elliptical spacer or sheared off after adjustment at the factory, and the inaccessibility is such that the screw cannot be accessed and/or adjusted with simple tools in one-half hour or for $20 (1978 dollars) or less.

(B) In the case of a choke bimetal spring, the plate covering the bimetal spring is riveted or welded in place, or held in place with nonreversible screws.

(C) In the case of a parameter which may be adjusted by elongating or bending adjustable members (e.g., the choke vacuum break), any elongation of the adjustable member is limited by design or, in the case of a bendable member, the member is constructed of a material which when bent would return to its original shape after the force is removed (plastic or spring steel materials).

(D) In the case of any parameter, the manufacturer demonstrates that adjusting the parameter to settings other than the manufacturer's recommended setting takes more than one-half hour or costs more than $20 (1978 dollars).

(ii) The Administrator will determine a physical limit or stop to be an adequate restraint on adjustability if:

(A) In the case of a threaded adjustment, the threads are terminated, pinned or crimped so as to prevent additional travel without breakage or need for repairs which take more than one-half hour or cost more than $20 (1978 dollars).

(B) The adjustment is ineffective at the end of the limits of travel regardless of additional forces or torques applied to the adjustment.

(C) The manufacturer demonstrates that travel or rotation limits cannot be exceeded with the use of simple and inexpensive tools (e.g., screwdriver, pliers, open-end or box wrenches)

without incurring significant and costly damage to the vehicle or control system or without taking more than one-half hour or costing more than $20 (1978 dollars).

(iii) If manufacturer service manuals or bulletins describe routine procedures for gaining access to a parameter or for removing or exceeding a physical limit, stop, seal or other means used to inhibit adjustment, or if surveillance data indicate that gaining access, removing, or exceeding is likely, paragraphs (e)(2)(i) and (e)(2)(ii) of this section shall not apply for that parameter.

(iv) In determining the adequacy of a physical limit, stop, seal, or other means used to inhibit adjustment of a parameter not covered by paragraph (e)(2)(i) or (e)(2)(ii) of this section, the Administrator will consider the likelihood that it will be circumvented, removed, or exceeded on in-use vehicles. In determining likelihood the Administrator will consider such factors as, but not limited to, information contained in the preliminary application; surveillance information from similar in-use vehicles; the difficulty and cost of circumventing, removing, or exceeding the limit, stop, seal, or other means; damage to the vehicle if an attempt is made to circumvent, remove, or exceed it and the need to replace parts following such attempt; and the effect of settings beyond the limit, stop, seal, or other means on vehicle performance characteristcs other than emission characteristics.

(3) The Administrator shall determine two physically adjustable ranges for each parameter subject to adjustment.

(i) (A) In the case of a parameter determined to be adequately inaccessible or sealed, the Administrator may include within the physically adjustable range applicable to testing under §§ 86.079-23 and 86.081-29 (certification testing) all settings within the production tolerance associated with the nominal setting for that parameter, as specified by the manufacturer in the preliminary application for certification.

(B) In the case of other parameters, the Administrator shall include within this range all settings within physical limits or stops determined to be adequate restraints on adjustability. The Administrator may also include the production tolerances on the location of these limits or stops when determining the physically adjustable range.

(ii) (A) In the case of a parameter determined to be adequately inaccessible or sealed, the Administrator shall include within the physically adjustable range applicable to testing under § 86.608 (Selective Enforcement Audit testing) only the actual setting to which the parameter is adjusted during production.

(B) In the case of other parameters, the Administrator shall include within this range all settings within physical limits or stops determined to be adequate restraints on adjustability, as they are actually located and effective on the test vehicle.

(f) If the manufacturer submits the information specified in § 86.081-21(b)(1)(ii) in advance of its full preliminary application for certification, the Administrator shall review the information and make the determinations required in paragraph (e) of this section.

(g) Within 30 days following receipt of notification of the Administrator's determinations made under paragraph (e) of this section, the manufacturer may request a hearing on the Administrator's determinations. The request shall be in writing, signed by an authorized representative of the manufacturer, and shall include a statement specifying the manufacturer's objections to the Administrator's determinations, and data in supprt of such objections. If, after review of the request and supporting data, the Administrator finds that the request raises a substantial factual isssue, he shall provide the manufacturer a hearing in accordance with § 86.078-6 with respect to such issue.

4. By adding a new § 86.081-29 to read as follows:

§ 86.081-29 Testing by the Administrator.

(a) (1) Paragraph (a) of this section applies to light-duty vehicles and light-duty trucks.

(2) The Administrator may require that any one or more of the test vehicles be submitted to him, at such place or places as he may designate, for the purposes of conducting emissions tests. The Administrator may specify that he will conduct such testing at the manufacturer's facility, in which case instrumentation and equipment specified by the Administrator shall be made available by the manufacturer for test operations. Any testing conducted at a manufacturer's facility pursuant to this paragraph shall be scheduled by the manufacturer as promptly as possible.

(3)(i) Whenever the Administrator conducts a test on a test vehicle, the results of that test shall, unless subsequently invalidated by the Administrator, comprise the official data for the vehicle at the prescribed test point and the manufacturer's data for that prescribed test point shall not be used in determining compliance with emission standards.

(ii) Whenever the Administrator does not conduct a test on a test vehicle at a test point, the manufacturer's test data will be accepted as the official data for that test point: *Provided,* That if the Administrator makes a determination based on testing under paragraph (a)(2) of this section that there is a lack of correlation between the manufacturer's test equipment and the test equipment used by the Administrator, no manufacturer's test data will be accepted for purposes of certification until the reasons for the lack of correlation are determined and the validity of the data is established by the manufacturer; *And, further provided,* That if the Administrator has reasonable basis to believe that any test data submitted by the manufacturer is not accurate or has been obtained in violation of any provisions of this part, the Administrator may refuse to accept that data as the official data pending retesting or submission of further information. If the manufacturer conducts more than one test on a vehicle, as authorized under § 86.079-26(a)(3)(i)(A), the data from the last test in that series of tests on that vehicle will constitute the official data:

(iii)(A)(*1*) The Administrator may adjust or cause to be adjusted any adjustable parameter of an emission data vehicle or engine which the Administrator has determined to be subject to adjustment for certification and Selective Enforcement Audit testing in accordance with § 86.081-22(e)(1), to any setting within the physically adjustable range of that parameter, as determined by the Administrator in accordance with § 86.081-22(e)(3)(i), prior to the performance of any tests to determine whether such vehicle or engine conforms to applicable emission standards, including tests performed by the manufacturer under § 86.079-23(c)(1). However, if the idle speed parameter is one which the Administrator has determined to be subject to adjustment, the Administrator shall not adjust it to a setting which causes a higher engine idle speed than would have been possible within the physically adjustable range of the idle speed parameter on the vehicle before it accumulated any mileage, all other parameters being adjusted identically for the purpose of comparison. The Administrator, in making or specifying such adjustments, will consider the effect of the deviation from the manufacturer's recommended setting on emissions performance characteristics as well as the likelihood that similar settings will occur on in-use light-duty vehicles or light-duty trucks. In determining likelihood, the Administrator will consider factors such as, but not limited to, the effect of the adjustment on vehicle performance characteristics and surveillance information from similar in-use vehicles.

(*2*) For those vehicle or engine parameters which the Administrator has

not determined to be subject to adjustment during certification and Selective Enforcement Audit testing in accordance with § 86.081-22(e)(1), the emission data vehicle presented to the Administrator for testing shall be calibrated within the production tolerances applicable to the manufacturer's specifications to be shown on the vehicle label (see § 86.079-35(a)(1)(iii)(D)) as specified in the application for certification. If the Administrator determines that a vehicle is not within such tolerances, the vehicle will be adjusted, at the facility designated by the Administrator, prior to the test and an engineering report shall be submitted to the Administrator describing the corrective action taken. Based on the engineering report, the Administrator will determine if the vehicle will be used as an emission data vehicle.

(B) If the Administrator determines that the test data developed on an emission-data vehicle under paragraph (a)(3)(i) of this section would cause that vehicle to fail due to excessive 4,000 mile emissions or by application of the appropriate deterioration factor, then the following procedure shall be observed:

(*1*) The manufacturer may request a retest. Before the retest, those vehicle or engine parameters which the Administrator has not determined to be subject to adjustment for certification and Selective Enforcement Audit testing in accordance with § 86.081-22(e)(1) may be readjusted to the manufacturer's specifications, if these adjustments were made incorrectly prior to the first test. The Administrator may adjust or cause to be adjusted any parameter which the Administrator has determined to be subject to adjustment to any setting within the physically adjustable range of that parameter, as determined by the Administrator in accordance with § 86.081-22(e)(3)(i). However, if the idle speed parameter is one which the Administrator has determined to be subject to adjustment, the Administrator shall not adjust it to a setting which causes a higher engine idle speed than would have been possible within the physically adjustable range of the idle speed parameter on the vehicle before it accumulated any mileage, all other parameters being adjusted identically for the purpose of comparison. Other maintenance or repairs may be performed in accordance with § 86.079-25. All work on the vehicle shall be done at such location and under such conditions as the Administrator may prescribe.

(2) The vehicle will be retested by the Administrator and the results of this test shall comprise the official data for the emission-data vehicle.

(iv) If sufficient durability data are not available at the time of any emission test conducted under paragraph (a)(2) of this section to enable the Administrator to determine whether an emission-data vehicle would fail, the manufacturer may request a retest in accordance with the provisions of paragraphs (a)(3)(iii) (A) and (B) of this section. If the manufacturer does not promptly make such request, he shall be deemed to have waived the right to a retest. A request for retest must be made before the manufacturer removes the vehicle from the test premises.

(b) (1) Paragraph (b) of this section applies to heavy-duty engines.

(2) The Administrator may require that any one or more of the test engines be submitted to him, at such place or places as he may designate, for the purpose of conducting emissions tests. The Administrator may specify that he will conduct such testing at the manufacturer's facility, in which case instrumentation and equipment specified by the Administrator shall be made available by the manufacturer for test operations. Any testing conducted at a manufacturer's facility pursuant to this paragraph shall be scheduled by the manufacturer as promptly as possible.

(3) (i) Whenever the Administrator conducts a test on a test engine the results of that test, unless subsequently invalidated by the Administrator, shall comprise the official data for the engine at that pescribed test point and the manufacturer's data for that prescribed test point shall not be used in determining compliance with emission standards.

(ii) Whenever the Administrator does not conduct a test on a test engine at a test point, the manufacturer's test data will be accepted as the official data for that test point: *Provided,* That if the Administrator makes a determination based on testing under paragraph (b)(2) of this section that there is a lack of correlation between the manufacturer's test equipment and the test equipment used by the Administrator, no manufacturer's test data will be accepted for purposes of certification until the reasons for the lack of correlation are determined and the validity of the data is established by the manufacturer: *And further provided,* That if the Administrator has reasonable basis to believe that any test data submitted by the manufacturer is not accurate or has been obtained in violation of any provision of this part, the Administrator may refuse to accept that data as the official data pending retesting or submission of further information.

(iii)(A) The emission-data engine presented to the Administrator for testing shall be calibrated within the production tolerances applicable to the manufacturer's specifications to be shown on the engine label (see § 86.079-35(a)(2)(iii) as specified in the application for certification. If the Administrator determines that an engine is not within such tolerances, the engine shall be adjusted at the facility designated by the Administrator prior to the test and an engineering report shall be submitted to the Administrator describing the corrective action taken. Based on the engineering report the Administrator will determine if the engine shall be used as an emission-data engine.

(B) If the Administrator determines that the test data developed under paragraph (b)(3)(iii)(A) of this section would cause the emission-data engine to fail due to excessive 125-hour emission values or by the application of the appropriate deterioration factor, then the following procedure shall be observed.

(*1*) The manufacturer may request a retest. Before the retest, the engine may be readjusted to manufacturer's specifications if these adjustments were made incorrectly prior to the first test, and other maintenance or repairs may be performed in accordance with § 86.079-25. All work on the engine shall be done at such location and under such conditions as the Administrator may prescribe.

(*2*) The engine will be retested by the Administrator and the results of this test shall comprise the official data for the emission-date engine.

(iv) If sufficient durability data are not available at the time of any emission test conducted under paragraph (b)(2) of this section to enable the Administrator to determine whether an emission-data engine would fail, the manufacturer may request a retest in accordance with the provisions of paragraphs (b)(3)(iii)(B) (*1*) and (*2*) of this section. If the manufacturer does not promptly make such request, he shall be deemed to have waived the right to a retest. A request for retest must be made before the manufacturer removes the engine from the test premises.

5. By adding a new § 86.082-22 to read as follows:

§ 86.082-22 Approval of application for certification; test fleet selections; determinations of parameters subject to adjustment for certification and Selective Enforcement Audit testing, adequacy of limits, and physically adjustable ranges.

(a) After a review of the application for certification and any other information which the Administrator may require, the Administrator may approve the application and select a test fleet in accordance with § 86.080-24.

(b) The Administrator may disapprove in whole or in part an application for certification for reasons in-

cluding incompleteness, inaccuracy, inappropriate proposed mileage (or service) accumulation procedures, test equipment, or fuel, and incorporation of defeat devices in vehicles (or on engines) described by the application.

(c) Where any part of an application is rejected, the Administrator shall notify the manufacturer in writing and set forth the reasons for such rejection. Within 30 days following receipt of such notification, the manufacturer may request a hearing on the Administrator's determination. The request shall be in writing, signed by an authorized representative of the manufacturer and shall include a statement specifying the manufacturer's objections to the Administrator's determinations, and data in support of such objections. If, after the review of the request and supporting data, the Administrator finds that the request raises a substantial factual issue, he shall provide the manufacturer a hearing in accordance with § 86.078-6 with respect to such issue.

(d) The Administrator does not approve the test procedures for establishing the evaporative emission deterioration factors. The manufacturer shall submit the procedures as required in § 86.081-21(b)(4)(ii) prior to the Administrator's selection of the test fleet under § 86.080-24(b)(1) and if such procedures will involve testing of durability-data vehicles selected by the Administrator or elected by the manufacturer under § 86.080-24(c)(1), prior to initiation of such testing.

(e) *Light-Duty vehicles and Light-Duty trucks only.* When the Administrator selects emission data vehicles for the test fleet, he will at the same time determine those vehicle or engine parameters which will be subject to adjustment during certification and Selective Enforcement Audit testing; the adequacy of the limits, stops, seals, or other means used to inhibit adjustment; and the resulting physically adjustable ranges for each such parameter and notify the manufacturer of his determinations.

(1)(i) The Administrator may determine to be subject to adjustment the idle fuel-air mixture, idle speed, and initial spark timing parameters on gasoline-fueled vehicles (carbureted or fuel injected); the choke valve action parameter(s) on carbureted, gasoline-fueled vehicles; or any parameter on any vehicle (Diesel or gasoline-fueled) which is physically capable of being adjusted, may significantly affect emissions, and was not present on vehicles of the same engine family in the previous model year.

(ii) The Administrator may, in addition, determine to be subject to adjustment any other parameter on any vehicle which is physically capable of being adjusted and which may significantly affect emissions. However, the Administrator may do so only if he has previously notified the manufacturer that he might do so and has found, at the time he gave this notice, that the intervening period would be adequate to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period. In no event will this notification be given later than September 1 of the calendar year two years prior to the model year.

(iii) In determining the parameters subject to adjustment the Administrator will consider the likelihood that, for each of the parameters listed in paragraphs (e)(1)(i) and (e)(1)(ii) of this section, settings other than the manufacturer's recommended setting will occur on in-use vehicles. In determining likelihood, the Administrator will consider such factors as, but not limited to, information contained in the preliminary application, surveillance information from similar in-use vehicles, the difficulty and cost of gaining access to an adjustment, damage to the vehicle if an attempt is made to gain such access and the need to replace parts following such attempt, and the effect of settings other than the manufacturer's recommended setting on vehicle performance characteristics including emission characteristics.

(2)(i) The Administrator will determine a parameter to be adequately inaccessible or sealed if:

(A) In the case of an idle mixture screw, the screw is recessed within the carburetor casting and sealed with lead, thermosetting plastic, or an inverted elliptical spacer or sheared off after adjustment at the factory, and the inaccessibility is such that the screw cannot be accessed and/or adjusted with simple tools in one-half hour or for $20 (1978 dollars) or less.

(B) In the case of a choke bimetal spring, the plate covering the bimetal spring is riveted or welded in place, or held in place with nonreversible screws.

(C) In the case of a parameter which may be adjusted by elongating or bending adjustable members (e.g., the choke vacuum break), any elongation of the adjustable member is limited by design, or in the case of a bendable member, the member is constructed of a material which when bent would return to its original shape after the force is removed (plastic or spring steel materials).

(D) In the case of any parameter, the manufacturer demonstrates that adjusting the parameter to settings other than the manufacturer's recommended setting takes more than one-half hour or costs more than $20 (1978 dollars).

(ii) The Administrator will determine a physical limit or stop to be an adequate restraint on adjustability if:

(A) In the case of a threaded adjustment, the threads are terminated, pinned or crimped so as to prevent additional travel without breakage or need for repairs which take more than one-half hour or cost more than $20 (1978 dollars).

(B) The adjustment is ineffective at the end of the limits of travel regardless of additional forces or torques applied to the adjustment.

(C) The manufacturer demonstrates that travel or rotation limits cannot be exceeded with the use of simple and inexpensive tools (e.g., screwdriver, pliers, open-end or box wrenches) without incurring significant and costly damage to the vehicle or control system or without taking more than one-half hour or costing more than $20 (1978 dollars).

(iii) If manufacturer service manuals or bulletins describe routine procedures for gaining access to a parameter or for removing or exceeding a physical limit, stop, seal or other means used to inhibit adjustment, or if surveillance data indicate that gaining access, removing, or exceeding is likely, paragraphs (e)(2)(i) and (e)(2)(ii) of this section shall not apply for that parameter.

(iv) In determining the adequacy of a physical limit, stop, seal, or other means used to inhibit adjustment of a parameter not covered by paragraph (e)(2)(i) or (e)(2)(ii) of this section, the Administrator will consider the likelihood that it will be circumvented, removed, or exceeded on in-use vehicles. In determining likelihood the Administrator will consider such factors as, but not limited to, information contained in the preliminary application; surveillance information from similar in-use vehicles; the difficulty and cost of circumventing, removing, or exceeding the limit, stop, seal, or other means; damage to the vehicle if an attempt is made to circumvent, remove, or exceed it and the need to replace parts following such attempt; and the effect of settings beyond the limit, stop, seal, or other means on vehicle performance characteristics other than emission characteristics.

(3) The Administrator shall determine two physically adjustable ranges for each parameter subject to adjustment.

(i)(A) In the case of a parameter determined to be adequately inaccessible or sealed, the Administrator may include within the physically adjustable range applicable to testing under §§ 86.079-23 and 86.081-29 (certification testing) all settings within the production tolerance associated with the nominal setting for that parameter, as specified by the manufacturer

in the preliminary application for certifiation.

(B) In the case of other parameters, the Administrator shall include within this range all settings within physical limits or stops determined to be adequate restraints on adjustability. The Administrator may also include the production tolerances on the location of these limits or stops when determining the physically adjustable range.

(ii)(A) In the case of a parameter determined to be adequately inaccessible or sealed, the Administrator shall include within the physically adjustable range applicable to testing under § 86.608 (Selective Enforcement Audit testing) only the actual setting to which the parameter is adjusted during production.

(B) In the case of other parameters, the Administrator shall include within this range all settings within physical limits or stops determined to be adequate restraints on adjustability, as they are actually located and effective on the test vehicle.

(f) If the manufacturer submits the information specified in § 86.081-21(b)(1)(ii) in advance of its full preliminary application for certification, the Administrator shall review the information and make the determinations required in paragraph (e) of this section.

(g) Within 30 days following receipt of notification of the Administrator's determinations made under paragraph (e) of this section, the manufacturer may request a hearing on the Administrator's determinations. The request shall be in writing, signed by an authorized representative of the manufacturer, and shall include a statement specifying the manufacturer's objections to the Administrator's determinations, and data in support of such objections. If, after review of the request and supporting data, the Administrator finds that the request raises a substantial factual issue, he shall provide the manufacturer a hearing in accordance with § 86.078-6 with respect to such issue.

6. In § 86.601 by revising it to read as follows:

§ 86.601 Applicability.

For 1977 model year vehicles produced before January 1, 1977, the provisions of this subpart with the exception of §§ 86.612 and 86.613 and paragraph (b)(2) of § 86.608 are applicable to new gasoline-fueled light-duty vehicles, new diesel light-duty vehicles, new gasoline-fueled light-duty trucks, and new diesel light-duty trucks. For 1977 vehicles produced beginning January 1, 1977 and later model year vehicles, the provisions of this subpart with the exception of paragraph (b)(2) of § 86.608 are applicable. For 1981 and later model year vehicles, all provisions of this subpart are applicable.

7. In § 86.608 by redesignating paragraph (b) to be paragraph (b)(1) and adding a new paragraph (b)(2) to read as follows:

§ 86.608 Test procedures.

* * * * *

(b)(1) * * *

(2) For 1981 and later model years the Administrator may adjust or cause to be adjusted any engine or vehicle parameter which the Administrator has determined to be subject to adjustment for new vehicle compliance testing (e.g., for certification *or* Selective Enforcement Audit testing) in accordance with § 86.081-22(c)(1), to any setting within the physically adjustable range of that parameter, as determined by the Administrator in accordance with § 86.081-22(e)(3)(ii), prior to the performance of any tests. However, if the idle speed parameter is one which the Administrator has determined to be subject to adjustment, the Administrator shall not adjust it to a setting which causes a lower engine idle speed than will be possible within the physically adjustable range of the idle speed parameter on the vehicle when it has accumulated 4,000 miles, all other parameters being adjusted identically for the purpose of comparison. The Administrator, in making or specifying such adjustments, will consider the effect of the deviation from the manufacturer's recommended setting on emissions performance characteristics as well as the likelihood that similar settings will occur on in-use light-duty vehicles or light-duty trucks. In determining likelihood, the Administrator will consider factors such as, but not limited to, the effect of the adjustment on vehicle performance characteristics and surveillance information from similar in-use vehicles.

* * * * *

(Section 202, 206, and 301 of the Clean Air Act (15 U.S.C. 7521, 7525, 7601).)

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